STOHLGREN, THOMAS J., and RICHARD R. BACHAND. National Biological Survey, Natural Resource Ecology Laboratory, Colorado State University, Ft. Collins, CO, 80523, USA. Monitoring forest change at ecotones in the Colorado Rockies.

We are assessing the potential effect of global climate change on the Front Range of the Colorado Rockies, including Rocky Mountain National Park. One objective is quantify the abiotic and biotic controls on forest distribution and productivity as a basis for assessing potential vegetation change for a range of projected climate scenarios. A series of long-term vegetation transects are being established to relate soil characteristics (e.g., soil type, texture, moisture, nitrogen content) and microclimate (air and soil temperature) to vegetation characteristics (e.g., basal area, leaf area index, tree age structure, resource use efficiency, primary production) across lodgepole pine (Pinus contorta var. latifolia) ecotones. Results from five 200+ m ecotonal transects (68 20 m x 20 m plots; over 3,753 trees) show that basal area gradients from lodgepole pine to spruce-fir (Picea engelmannii, Abies lasiocarpa), ponderosa pine (Pinus ponderosa), and limber pine (Pinus flexilis) forests are correlated strongly (but not linearly), to soil texture and summer soil moisture. Factors controlling species-specific radial growth patterns along ecotones are more complex.